

Have you heard about human accelerated regions of the human genome? HARs are the areas that have changed at the highest velocity between humans and other primates. Wikipedia says there are 47 HAR genes. Putting all 47 of these HAR genes in one mouse at \$2k per gene is about \$100k, and then making 8 clones is about another 16K. 8 clonal mice is sufficient to calculate a p value at .05 So it looks like there is an experiment that could be done for near \$120k that could see if mice live three times longer, something near the 2019 AD human 2019 AD primate difference. The numbers are approximate but if they are order of magnitude plausible then it is less than 1.2 million \$.

If it works on the mice the popularity and awareness of longevity technology could go up if zoo animals

were genetically engineered to live three times longer as well.

<https://www.fightaging.org/archives/2009/06/significant-single-gene-longevity-mutations-in-humans-what-are-the-odds/#comment-37059>

straw genetically engineered to make latex rubber might be more waterproof.

Lithium supplements could be longevity drugs: Hence, we used a typical model organism for anti-aging studies, *C. elegans*, to test whether low-dose Li^+ levels similar to those observed in some areas of the Oita prefecture, i.e. 10 μM , may actually *cause* reduced mortality. Based on previously published evidence from the Lithgow laboratory, a 1000-fold higher concentration extends *C. elegans*

1000 times 59 ug is 5.9 mg, so 5.9 mg dose

LiCl has been previously shown to extend life span of a model organism for anti-aging studies, the roundworm *Caenorhabditis elegans*, when applied at high, i.e. non-nutritional doses of 5 mM and above [11]. However, drinking water Li⁺ concentrations in the Oita prefecture ranged from 0.7 to 59 µg/L only [8], the latter equaling a concentration of 8.5 µM. Hence, we have continuously exposed several hundreds of *C. elegans* in separate experiments to 1 and 10 µM LiCl, respectively. We found mortality in populations exposed to 10 µM of LiCl to be decreased ($p = 0.047$) (Fig. 1b),

noting that lithium at 1000 times the concentration of the water supply of

some humans during 2018ish causes c elegans to live more than 30% longer, making GRAS food and additive ingredients that contain lithium could be beneficial. It is possible that any food additive with a measured nonoptimal wellness effect could be made into a beneficial form with lithium chemistry. So using lithium nitrite and lithium nitrate instead of sodium nitrate and nitrite and sodium propionate could be a longevity producing preservative. It is possible that as many chemicals during the 20th century just used a sodium salt as the cheapest to produce variety **there are many common food additives that are sodium salts, which if changed to lithium salts would cause longevity effects at many foods.** Notably lithium, to my perception causes a longevity heightening effect at a two

or even possibly three orders of magnitude dose variations suggesting unspecified amounts of lithium from nonmeasured sources would have a longevizing effect.

An actual biologically active drug that causes the placebo effect to go up 100%. is it ethical?